

# RECOMBINANT HUMAN ALPHA-FETOPROTEIN AS A CELL PROLIFERATIVE AGENT.

Robert A. Murgita Filing Date: June 20, 1997

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AT (2)  
-1  
-10  
-19  
ATGGGCTCCACCACTGCAATACAAATACTAGCAACC ATG AAG TGG GTG GAA TCA ATT TTT TTA ATT TTC CTA CTA AAT TTT ACT GAA TCC AGA (101)  
1 thr leu his arg asn glu tyr gly ile ala ser ile leu asp ser tyr gln cys thr ala glu ile ser leu ala asp leu ala thr ile 30  
ACA CTG CAT AGA AAT GAA TAT GCA ATA GCT TCC ATA TTG GAT TCT TAC CAA TGT ACT GCA GAG ATA AGT TTA GCT GAC CTG GCT ACC ATA (191)  
31 phe phe ala gln phe val gln glu ala thr tyr lys glu val ser lys met val lys asp ala leu thr ala ile glu lys pro thr gly 40  
TTT TTT GCC CAG TTT GTT CAA GAA GCC ACT TAC AAG GAA GTA AGC AAA ATG GTG AAA GAT GCA TTG ACT GCA ATT GAG AAA CCC ACT GGA (281)  
61 asp glu gln ser ser gly cys leu glu asn gln leu pro ala phe leu glu glu leu cys his glu lys glu ile leu glu lys tyr gly 50  
GAT GAA GAG TCT TCA GGG TGT TTA GAA AAC CAG CTA CCT GCC TTT CTG GAA GAA CTT TGC CAT GAG AAA GAA ATT TTG GAG AAG TAC GGA (371)  
91 his ser asp cys cys ser gln ser glu glu arg his asn cys phe leu ala his lys lys pro thr pro ala ser ile pro leu phe 60  
CAT TCA GAC TGC TGC AGC CAA AGT GAA GAG GGA AGA CAT AAC TGT TTT GCA CAC AAA AAG CCC ACT CCA GCA TCG ATC CCA CTT TTC (461)  
121 gln val pro glu pro val thr ser cys glu ala tyr glu glu asp arg glu thr phe met asn lys phe ile tyr glu ile ala arg arg 70  
CAA GTT CCA GAA CCT GTC ACA AGC TGT GAA GCA TAT GAA GAA GAC AGG AGC ACA TTC ATG AAC AAA TTC ATT TAT GAG ATA GCA AGA AGG (551)  
151 his pro phe leu tyr ala pro thr ile leu leu trp ala ala arg tyr asp lys ile ile pro ser cys cys lys ala glu asn ala val 80  
CAT CCC TTC CTG TAT GCA CCT ACA ATT CTT TGG GCT GCT CGC TAT GAC AAA ATA ATT CCA TCT TGC TGC AAA GCT GAA AAT GCA GTT (641)  
181 glu cys phe gln thr lys ala ala thr val thr lys glu leu arg glu ser ser leu leu asn gln his ala cys ala val met lys asn 90  
GAA TGC TTC CAA ACA AAG GCA GCA ACA GTT ACA AAA GAA TTA AGA GAA AGC AGC TTG TTA AAT CAA CAT GCA TGT GCA GTA ATG AAA AAT (731)  
190  
200  
210

Fig. 1A



RECOMBINANT HUMAN ALPHA-FETOPROTEIN AS A CELL  
PROLIFERATIVE AGENT.

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211 phe gly thr arg thr phe gln ala ile thr val thr lys leu ser gln lys phe thr lys val asn phe thr gln ile gln lys leu val 240  
 TTT GGG ACC CGA ACT TTC CAA GCC ATA ACT GTT ACT AAA CTG AGT CAG AAG TTT ACC AAA GTT AAT TTT ACT GAA ATC CAG AAA CTA GTC (821)  
 241 leu asp val ala his val his glu his cys cys arg gly asp val leu asp cys leu gln asp gly glu lys ile met ser tyr ile cys 270  
 CTG GAT GTG GCC CAT GTA CAT GAG CAC TGT TGC AGA GGA GAT GTG CTG GAT TGT CTG CAG GAT GGG GAA AAA ATC ATG TCC TAC ATA TGT (911)  
 271 ser gln gln asp thr leu ser asn lys ile thr glu cys cys lys leu thr thr leu glu arg gly gln cys ile ile his ala glu asn 300  
 TCT CAA CAA GAC ACT CTG TCA AAC AAA ATA ACA GAA TGC TGC AAA CTG ACC ACG CTG GAA CGT GGT CAA TGT ATA ATT CAT GCA GAA AAT (1001)  
 301 asp glu lys pro glu gly leu ser pro asn leu asn arg phe leu gly asp arg asp phe asn gln phe ser ser gly glu lys asn ile 330  
 GAT GAA AAA CCT GAA GGT CTA TCT CCA AAT CTA AAC AGG TTT TTA GGA GAT AGA GAT TTT AAC CAA TTT TCT TCA GGG GAA AAA AAT ATC (1091)  
 331 phe leu ala ser phe val his glu tyr ser arg arg his pro gln leu ala val ser val ile leu arg val ala lys gly tyr gln glu 360  
 TTC TTG GCA AGT TTT GTT CAT GAA TAT TCA AGA AGA CAT CCT CAG CTT GCT GTC TCA GTA ATT CTA AGA GTT GCT AAA GGA TAC CAG GAG (1181)  
 361 leu leu glu lys cys phe gln thr glu asn pro leu glu cys gln asp lys gly glu glu leu gln lys tyr ile gln glu ser gln 390  
 TTA TTG GAG AAG TGT TTC CAG ACT GAA AAC CCT CTT GAA TGC CAA GAT AAA GGA GAA GAA TTA CAG AAA TAC ATC CAG GAG AGC CAA (1271)  
 391 ala leu ala lys arg ser cys gly leu phe gln lys leu gly glu tyr tyr leu gln asn ala phe leu val ala tyr thr lys lys ala 420  
 GCA TTG GCA AAG CGA AGC TGC GGC CTC TTC CAG AAA CTA GGA GAA TAT TAC TTA CAA AAT GCG TTT CTC GTT GCT TAC ACA AAG AAA GCC (1361)  
 421 pro gln leu thr ser ser glu leu met ala ile thr arg lys met ala ala thr ala ala thr cys cys gln leu ser glu asp lys leu 450  
 CCC CAG CTG ACC TCG TCG GAG CTG ATG GCC ATC ACC AGA AAA ATG GCA GCC ACA GCA GCC ACT TGT TGC CAA CTC AGT GAG GAC AAA CTA (1451)

Fig. 1B



RECOMBINANT HUMAN ALPHA-FETOPROTEIN AS A  
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451 leu ala cys gly glu gly ala ala asp ile ile ile gly his leu cys ile arg his met thr pro val asp pro gly val gly gln  
460 470 480  
481 cys cys thr ser ser tyr ala asn arg pro cys phe ser ser leu val val asp glu thr tyr val pro pro ala phe ser asp asp  
490 500 510  
TGC TGC ACT TCT TCA TAT GCC AAC AGG AGG CCA TGC TTC AGC AGC TTG GTG GTG GAT GAA ACA TAT GTC CCT CCT GCA TTC TCT GAT GAC(1631)  
511 lys phe ile phe his lys asp leu cys gln ala gln gly val ala leu gln thr met lys gln glu phe leu ile asn leu val lys gln  
520 530 540  
AAG TTC ATT TTC CAT AAG GAT CTG TGC CAA GCT CAG GGT GTA GCG CTG CAA ACG ATG AAG CAA GAG TTT CTC ATT AAC CTT GTG AAG CAA(1721)  
541 lys pro gln ile thr glu glu gln leu glu ala val ile ala asp phe ser gly leu leu glu lys cys cys gln gly gln glu gln  
550 560 570  
AAG CCA CAA ATA ACA GAG GAA CAA CTT GAG GCT GTC ATT GCA GAT TTC TCA GGC CTG TTG GAG AAA TGC TGC CAA GGC CAG GAA CAG GAA(1811)  
571 val cys phe ala glu glu gly gln lys leu ile ser lys thr arg ala ala leu gly val ter  
580 590  
GTC TGC TTT GCT GAA GAG GGA CAA AAA CTG ATT TCA AAA ACT CGT GCT GCT TTG GGA GTT TAA ATTACTCAGGGAGAGAGACAAACGAGTCT(1908)  
TTCAATTCGGTGGAGCTTTCTCTTAATTTAACGATTTAACACTTTTGGAGATTAAATGAATGAAGACTTTTATGTGAGATTCTTATCAAGAAATAAATATCTCCAAA(2027)

Fig. 1C



RECOMBINANT HUMAN ALPHA-FETOPROTEIN AS A CELL  
PROLIFERATIVE AGENT.

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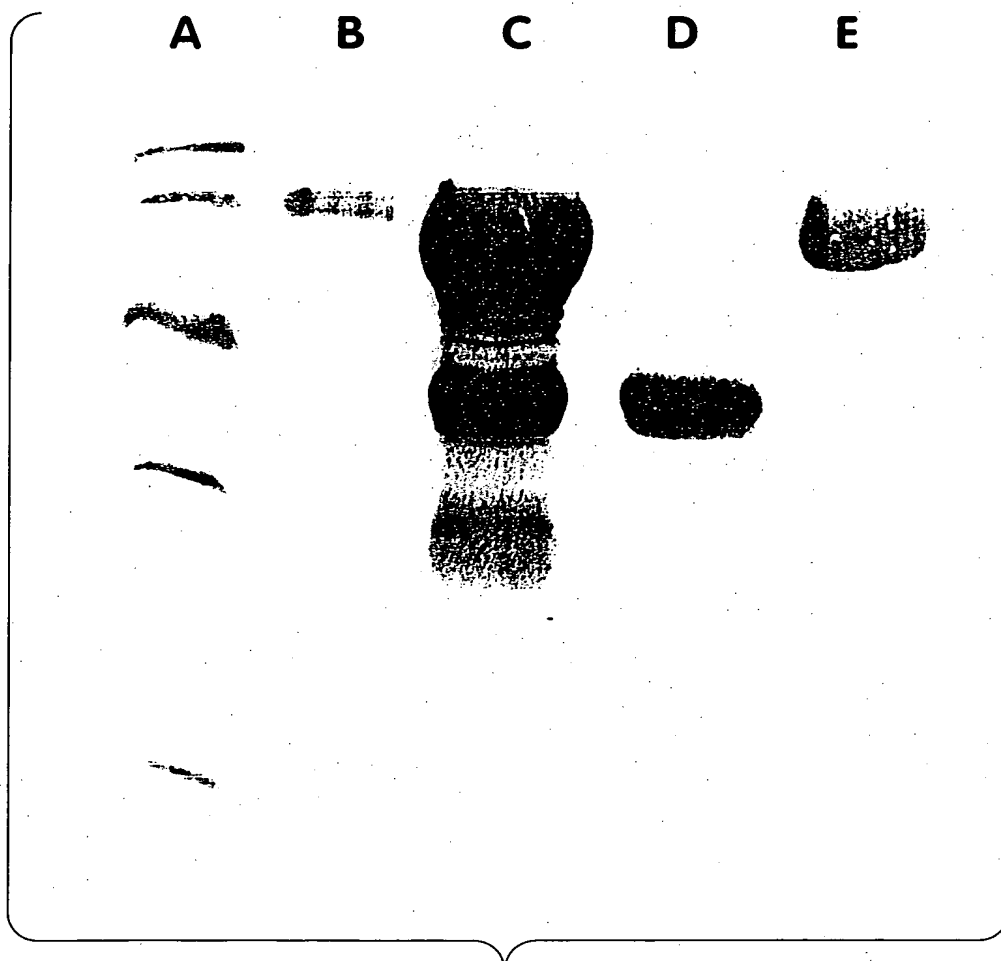


Fig. 2

RECOMBINANT HUMAN ALPHA-FETOPROTEIN AS A CELL  
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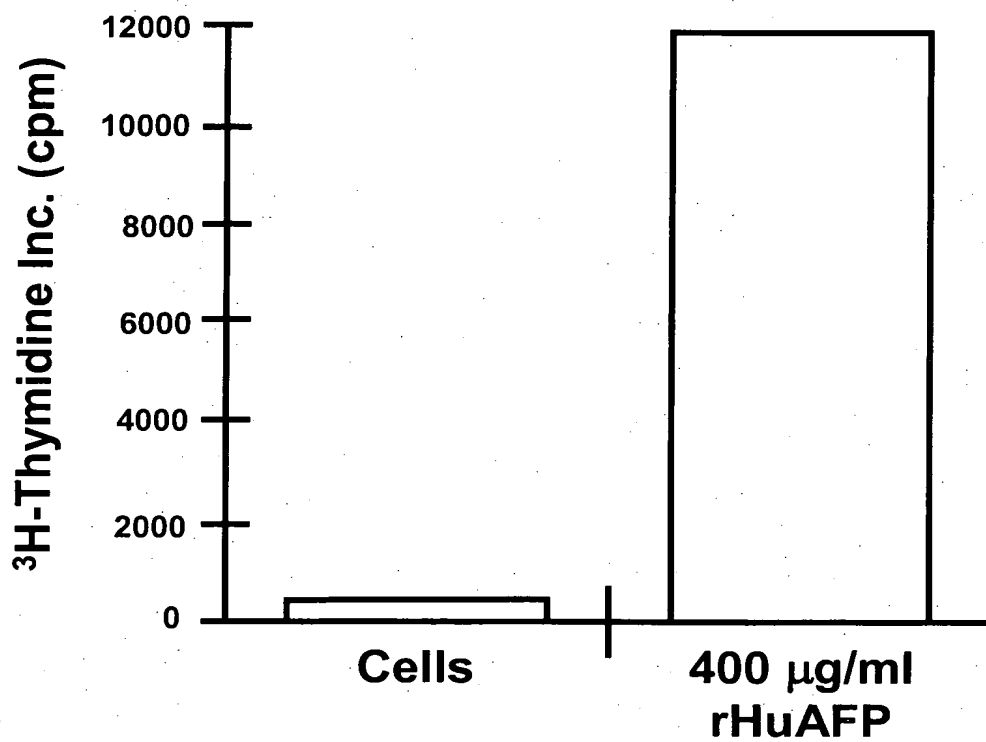


Fig. 3